

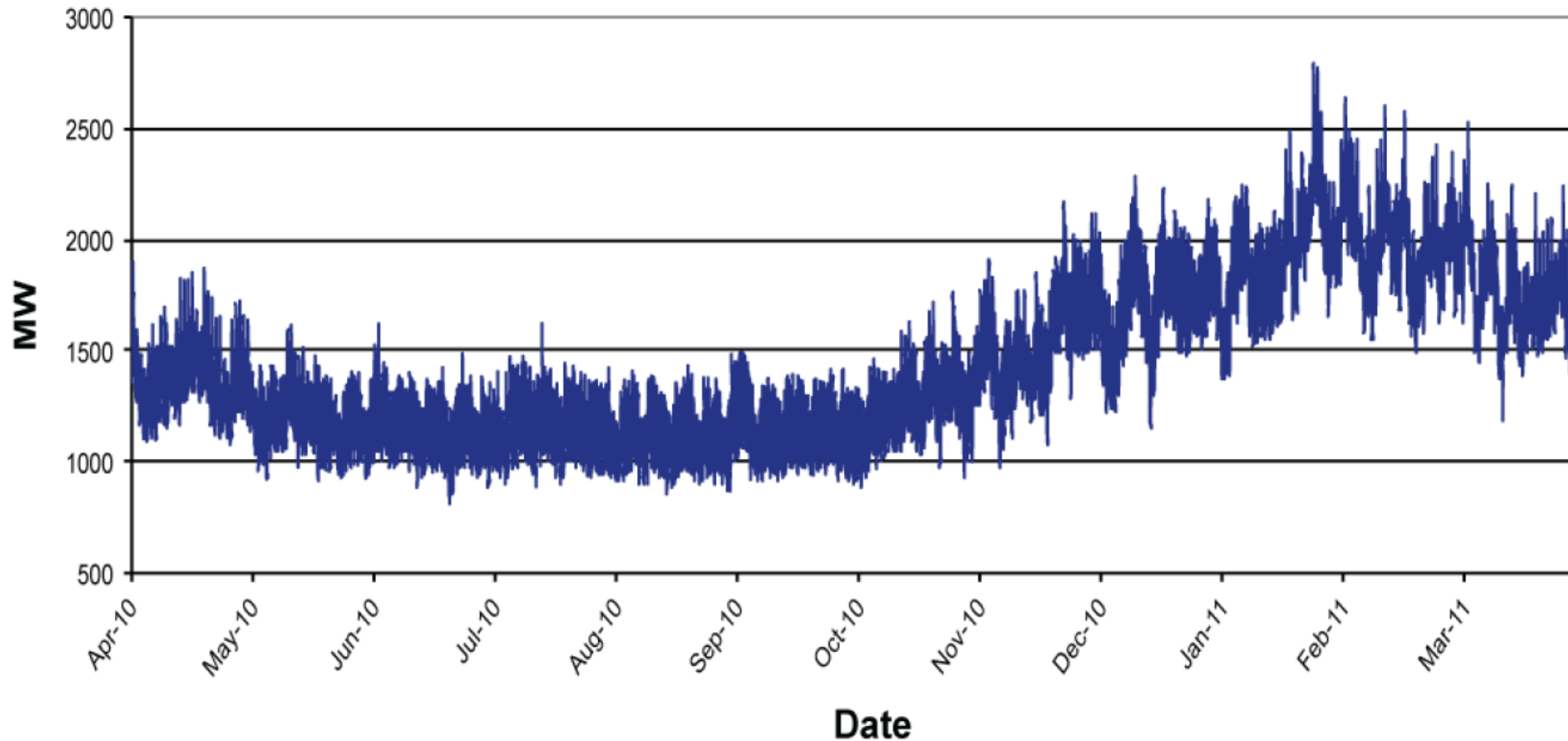


New Clear Free Solutions

www.newclearfreesolutions.com

New Brunswick Hourly System Load

Figure 3: 2009/10 Hourly System Load



Typical Winter and Summer Day

Colson Cove

NB Electricity Demand

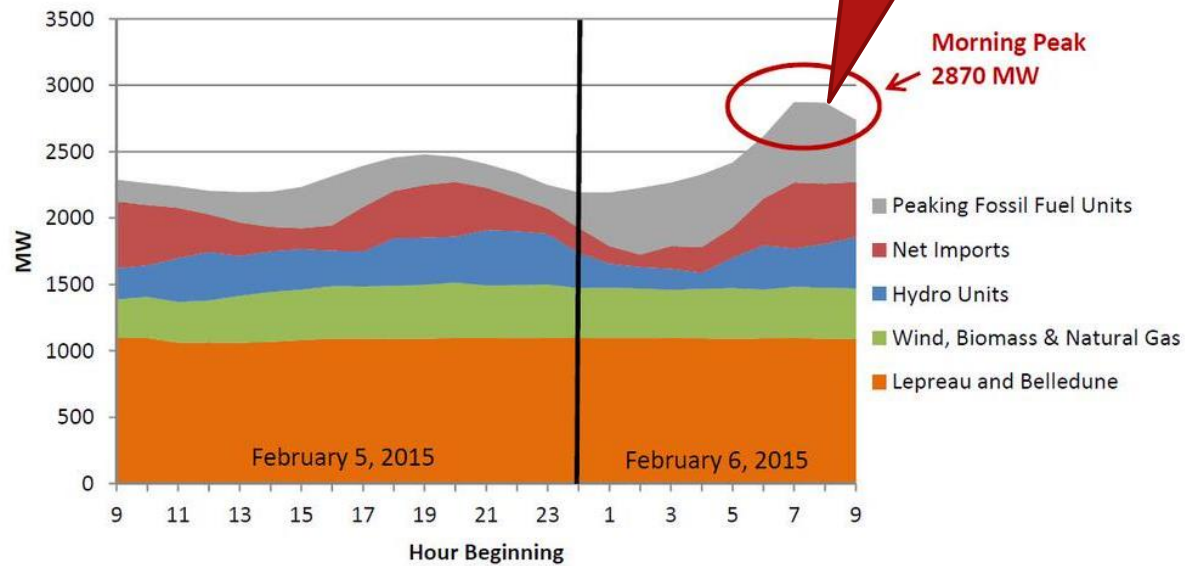
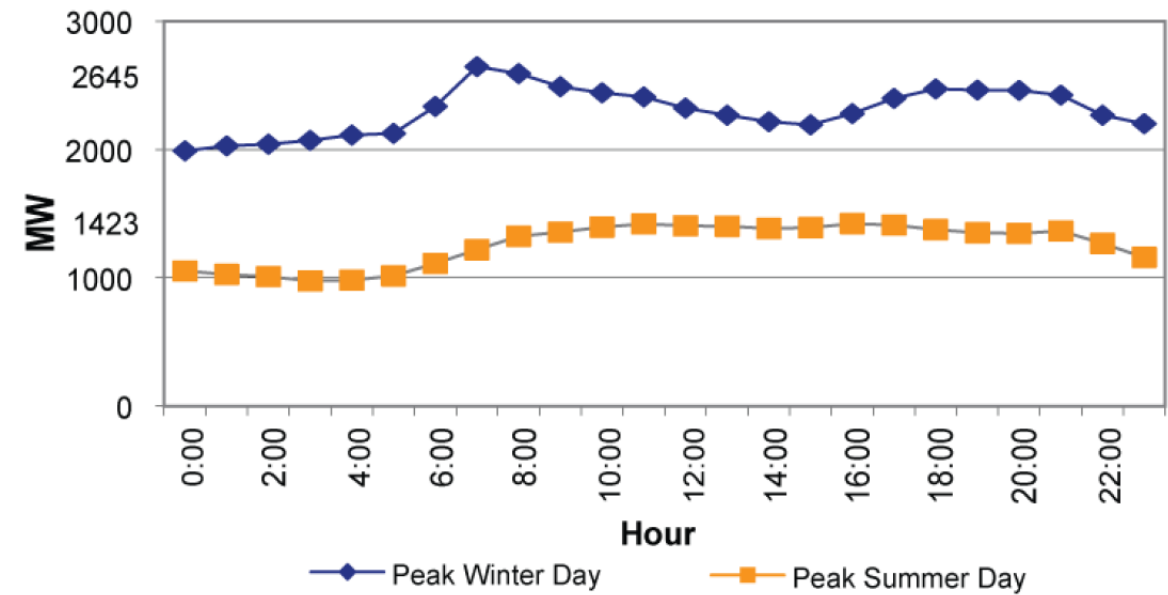
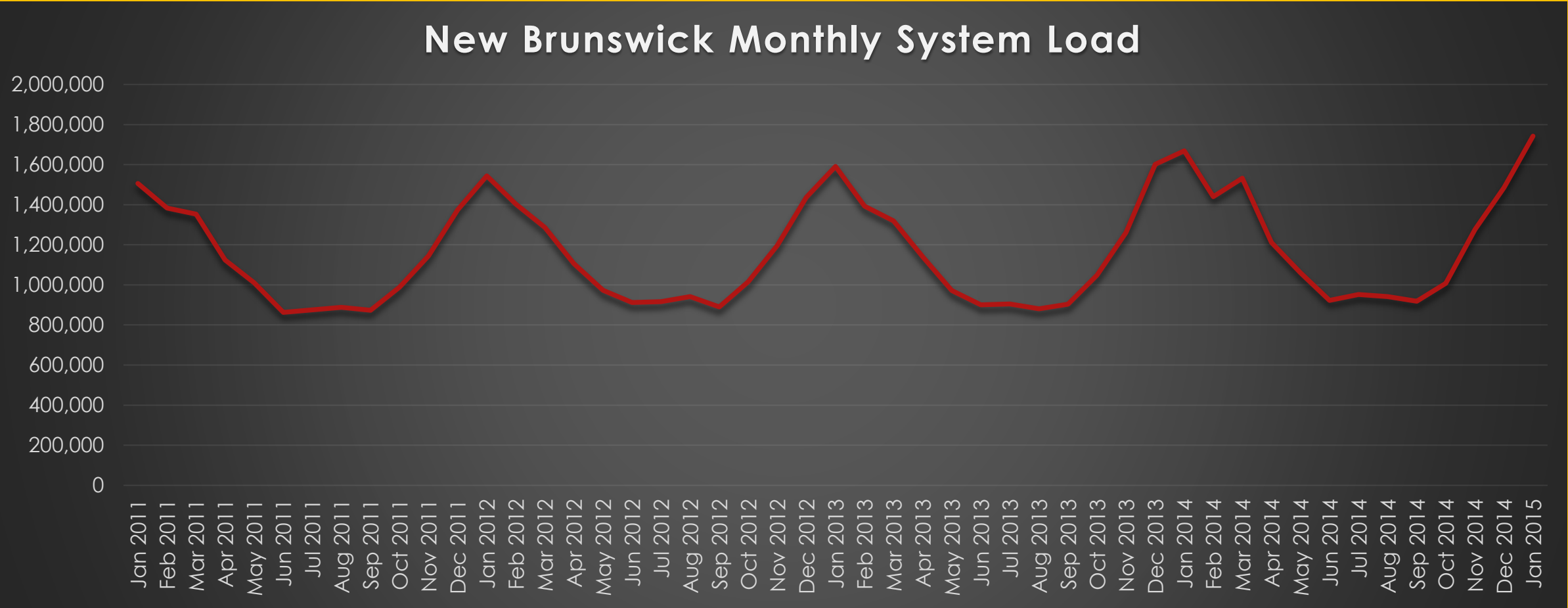


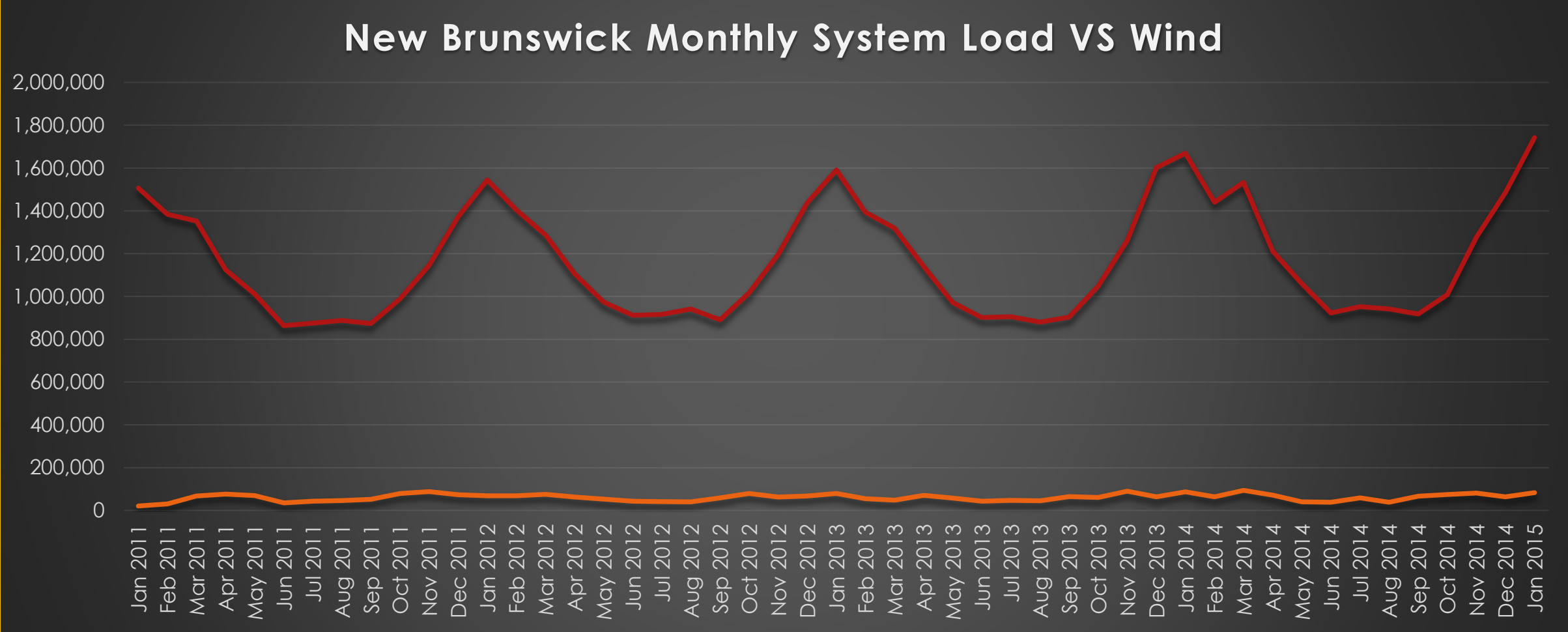
Figure 5: Total Load Requirements



New Brunswick Monthly System Load

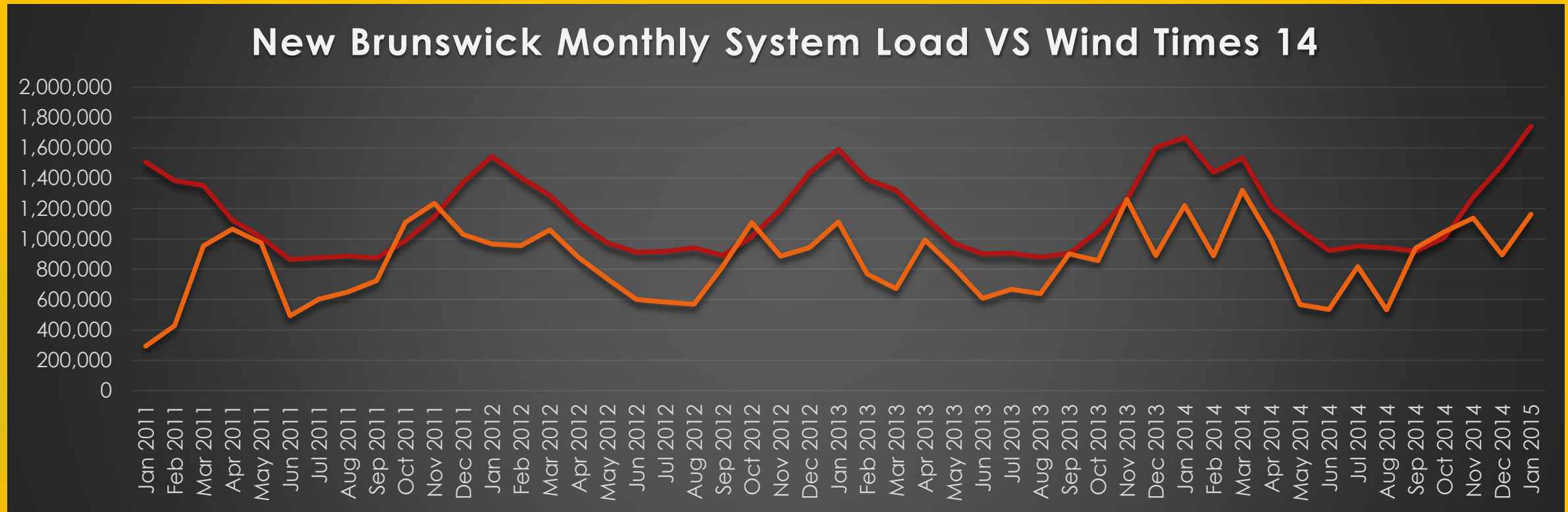


New Brunswick Wind Generation



New Brunswick Wind Multiplied by 14

Naturally Fits our Usage



Multiplication of 14 is only used to show seasonal patterns

Germany Summer and Winter

Electricity production in Germany in week 05 2015

[usage tips](#)

date selection

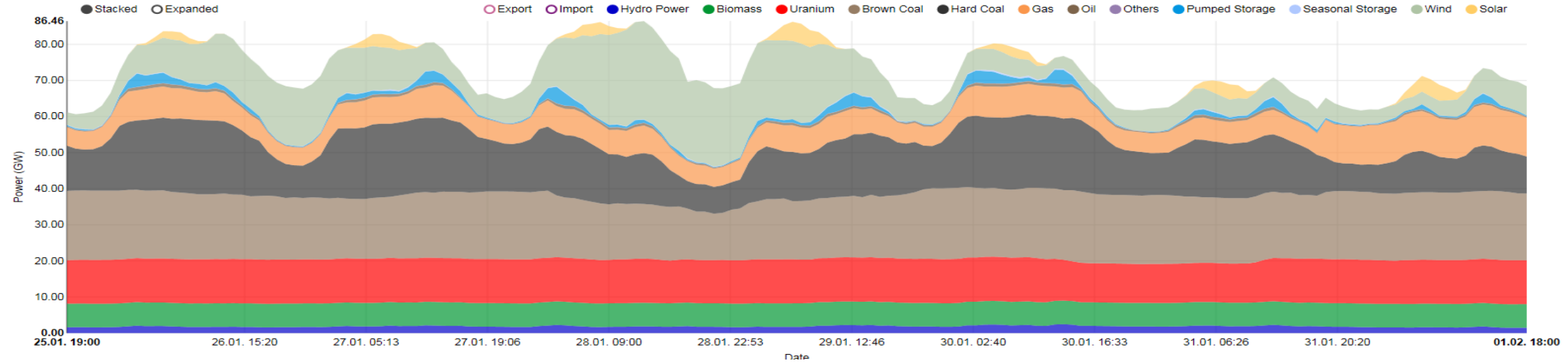
year:
2015

month:
▼

week:
5

- ☐ conv. >100MW
☒ all sources
☐ solar + wind

[print](#)



Electricity production in Germany in week 26 2014

[usage tips](#)

date selection

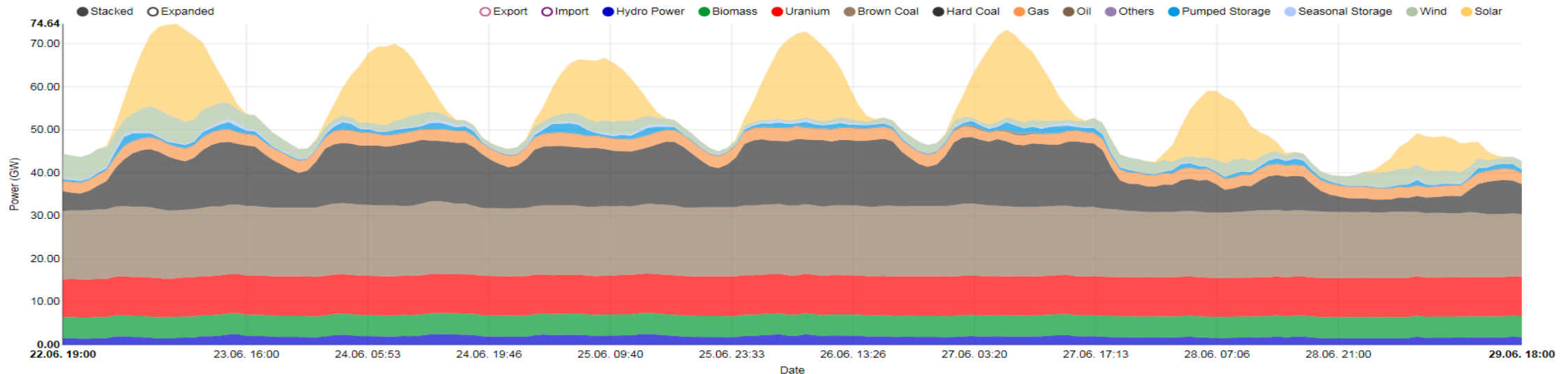
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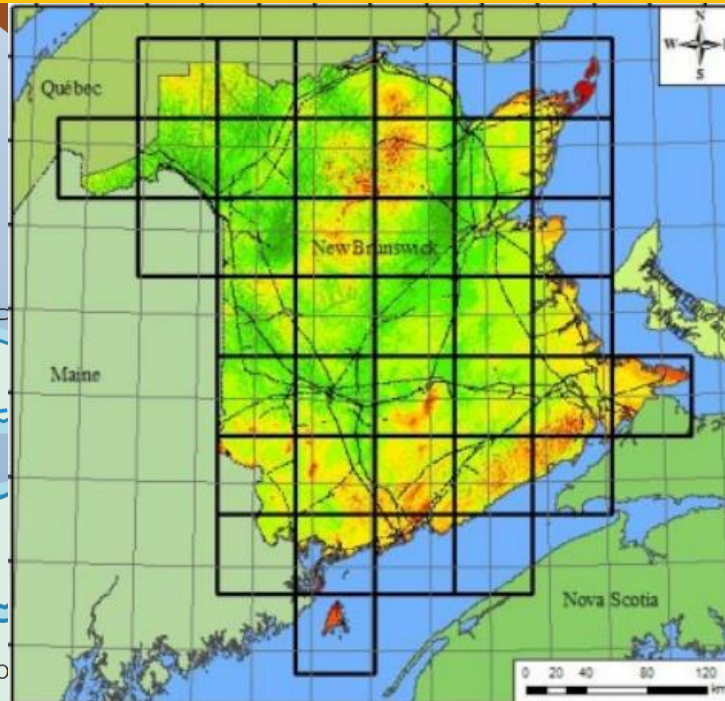
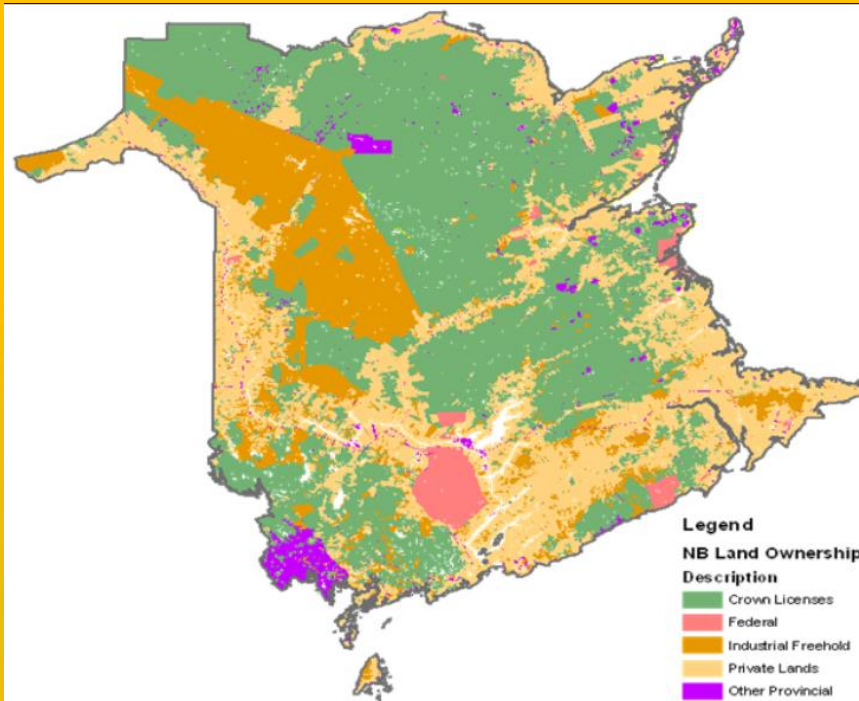
- ☐ conv. >100MW
☒ all sources
☐ solar + wind

[print](#)



Where to put them?

Crown Land



Economics

- Wind PPAs renewed for an additional term at reduced prices (25% reduction of new costs).

c) The average price for the existing wind PPA's currently stands at approximately \$84/MWh.

b) Yes, the current average wind PPA electricity rates are lower than the Levelized Cost of Electricity rates assumed in the IRP.

Why use a unrealistic cost of 110/MWh?

NBP (NCFS)

IR-16

March 27, 2015

Reference: Exhibit NBP4.04 "IR-10 Response C"

Questions:

- a) Is the average PPA price for wind lower than the cost of generating electricity at Coleson Cove?

RESPONSE:

- a) For the 2015/16 test year, the budgeted average PPA price for wind is lower than the budgeted cost of generating electricity at Coleson Cove.

Economics

Millions of Dollars of Private investment
without going into debt

Call for tenders for the purchase of 450 MW of wind power: Hydro-Québec Distribution accepts 3 bids totaling 446.4 MW

MONTREAL, Dec. 16, 2014 /CNW Telbec/ - Hydro-Québec Distribution announces that it has accepted 3 bids totaling 446.4 MW in response to the call for tenders issued on December 18, 2013, for the purchase of a block of 450 MW of wind power generated in Québec.

Deliveries of electricity must start December 1, 2016 and December 1, 2017. The average price of the accepted bids is 7.6 ¢/kWh, including 1.3 ¢/kWh for transmission costs.

We want the same Jobs every one else
Has.



The screenshot shows the PennEnergy website. The header features the PennEnergy logo in yellow and blue. Below the logo is a navigation bar with links: Home, Oil & Gas, Power, Tech & Data, Research, Markets, Products, Maps, and Books. A secondary navigation bar highlights 'Power' and includes a link to 'Report: Wind power to create 4,200 jobs in Maine in 2015'. The main content area displays the title 'Report: Wind power to create 4,200 jobs in Maine in 2015' in blue, with the date 'January 8, 2015' below it. A large image of a wind turbine is shown. At the bottom, a caption reads: 'PORTLAND, Maine (AP) — Maine's wind power industry is poised to double its energy output over the next four years and is projected to create more than 4,000 jobs in the state this year, according to a report released Tuesday.'

Can we burn less coal?

NBP (NCFS)

IR-14

March 27, 2015

Reference: Exhibit NBP4.04 “IR-5 Question C”

Questions:

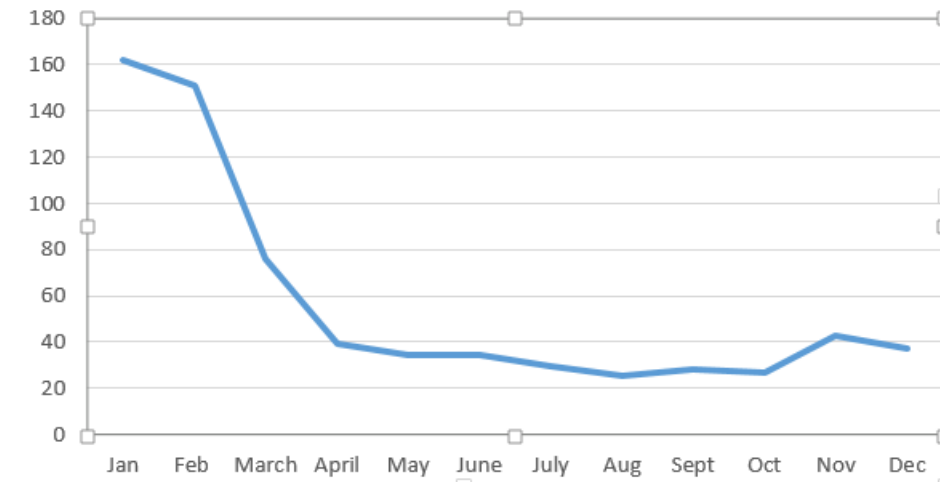
- a) Is it possible, and if so to what extent could hydro power from Quebec be used to either reduce or replace power generated from Belledune in the non-winter months?

RESPONSE:

- a) Yes, subject to operating constraints and economic conditions, it is possible to reduce Belledune production in non-winter months with purchases from Quebec. It is standard practice throughout the year for NB Power to displace in-province generation whenever it is more cost effective to purchase energy.

The Belledune Generating Station supplies power, energy and ancillary services including load following, reactive power and voltage control throughout the year. While an energy supply from Quebec may displace Belledune production, Belledune must still maintain a minimum level of production in order to be available for ancillary services and hourly and daily load variations throughout the year. Occasionally, during non-winter months, Belledune is shut down for planned maintenance and could be entirely replaced with energy purchases from Quebec if transmission capacity is available and a supply agreement is in place.

ISO-NE Monthly Median Price Per MWh 2014



What happens when the wind doesn't blow?

President of HQ
Terry Vandal

We can store a lot of power, in fact more power than the state of New York consumes in an entire year, and we have 40,000 MW of capacity to produce energy on demand for our customers. So we're natural partners for the long term. People are going to expect more of their power to be renewable in the future.

Quebec finds itself with an estimated surplus of more than 30 terawatt hours – enough to meet the annual electricity consumption of 45% of its households. New production

Power Shift Atlantic

Do what we are good at!!!!



Français

HOME

HOW IT WORKS

PARTNERS

RESIDENTIAL

COMMERCIAL

NEWS

PowerShift Atlantic is a collaboration of electric utilities in the Maritimes and their customers working together in a research project that will make a lasting difference for our region and our environment.



HOME

HOW IT WORKS

DID YOU KNOW?

PowerShift Atlantic is the only project of its kind that we are aware of in the world and has the potential to be part of the solution to address the global challenge of effectively integrating clean, renewable energy.

The PowerShift Atlantic project continues to attract international attention. The research project has been presented at a number of Smart Grid conferences around the world.

PowerShift Atlantic research has been recognized with a [2012 CEA Sustainable Electricity Award](#) and the [CanWEA R.J. Templin Award](#) in the Group Leadership Award Category.

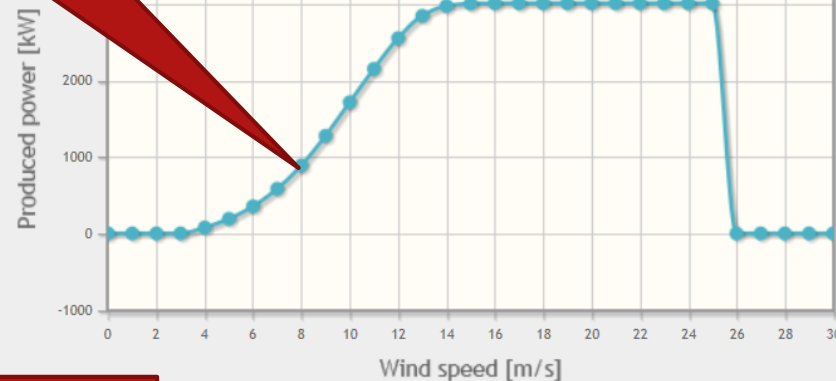
Advances In Wind Power

V90 3MW



Category:	>2500 kW
Producer:	Vestas
IEC class:	I
Nominal power:	3000 kW
Rotor diameter:	90 m
Power density:	471,57 W/m ²
Generator/converter technology:	DFIG
Drive train concept:	3-stage gearbox
Power curve data source:	Vestas document

900kw @ Wind Speed of 8m/s



Add to calculator

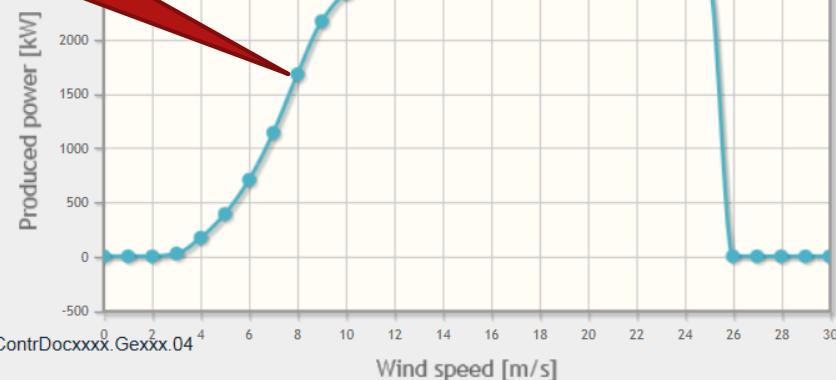
Kent Hills Wind Turbine

GE2.5-120



Category:	1500-2500 kW
Producer:	GE
IEC class:	II
Nominal power:	2500 kW
Rotor diameter:	120 m
Power density:	221,05 W/m ²
Generator/converter technology:	DFIG
Drive train concept:	3-stage gearbox
Power curve data source:	2.5-120_xxHz_DVP_allComp_ContrDocxxxx.Gexxx.04

1700kw @ Wind Speed of 8m/s



Add to calculator

Modern Wind Turbine